



INDIAN COUNCIL OF MEDICAL RESEARCH

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(HEALTH NEWS)

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HEADLINES



New markers to monitor TB treatment

December 15, 2018/The Hindu

Flu shots tied to lower risk of premature death with heart failure

December 15, 2018/The Asian Age

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December 15, 2018/Deccan Chronicle

Study by CMC doctors identifies rare bacteria

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Risk of serious kidney injury high during chemotherapy for cancer patients

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Green leafy vegetables may prevent fatty liver disease

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Protein that helps dengue, Japanese Encephalitis viruses multiply identified

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Scientists develop non-invasive technique to assess burn wound healing

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Higher intake of green leafy veggies essential to prevent liver disease, says study

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Exercise, healthy diet may improve brain power in elderly

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[New markers to monitor TB treatment](#)

December 15, 2018/The Hindu

Besides treatment, there is an urgent need for monitoring tuberculosis treatment to achieve better results. Researchers from the National JALMA Institute for Leprosy and Other Mycobacterial Diseases, have succeeded in identifying a couple of cell-based markers to study the response of TB patients to treatment.

Currently, studying the sputum of the patient using microscope is the only tool for treatment monitoring. “Sometimes patients can’t produce sputum, especially children and elderly patients. And when the patient is undergoing treatment also, he does not produce enough sputum. The microscopy method has low sensitivity - it needs atleast 10,000 bacilli/mL to detect properly,” explains Dr. Sonali Agrawal, who completed her PhD from the Institute. She is the first author of the study published in *Frontiers in Immunology*. The researchers collected blood samples from about 15 individuals, who were newly diagnosed with pulmonary TB and studied the expression of immune cell associated markers - T regulatory markers and Th17 associated markers.

[Flu shots tied to lower risk of premature death with heart failure](#)

December 15, 2018/The Asian Age

People with heart failure who get flu shots may be less likely to die prematurely than their counterparts who don’t get vaccinated, a Danish study suggests.

Researchers followed more than 134,000 patients with heart failure between 2003 and 2015, with half the patients staying in the study for at least 3.7 years. Overall, getting at least one flu shot was associated with an 18 percent lower risk of premature death from all causes and from cardiovascular problems in particular.

“We also found that annual vaccination frequency and vaccination early in the season were associated with greater reductions in the risk of death,” lead study author Daniel Modin of Gentofte University Hospital and the University of Copenhagen. “We already knew that influenza vaccination benefits the population as a whole, but our study adds support to the importance of influenza vaccination in patients with heart failure, and it also suggests that annual and consistent vaccination is important in this patient group,” Modin said by email.

Infections like the flu increase the body’s demand for energy, requiring the heart to pump harder. Failing hearts may not be able to do this, increasing the risk of serious flu complications like pneumonia.

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Green leafy vegetables may prevent fatty liver disease

December 19, 2018/The Times of India

Eating green leafy vegetables in larger portion daily may reduce the risk of developing fatty liver disease, suggests researchers in a mice study. Fatty liver or liver steatosis is a common liver disease and the most important causes are overweight and high alcohol consumption. Green leafy vegetables contain inorganic nitrate that can help prevent the accumulation of fat in the liver. "When we supplemented with dietary nitrate to mice fed with a high-fat and sugar Western diet, we noticed a significantly lower proportion of fat in the liver," said Mattias Carlstrom, Associate Professor from the Karolinska Institutet in Sweden. "No one has yet focused on nitrate, which we think is the key. We now want to conduct clinical studies to investigate the therapeutic value of nitrate supplementation to reduce the risk of liver steatosis," Carlstrom said.

Study by CMC doctors identifies rare bacteria

December 16, 2018/Deccan Chronicle

Doctors at the department of clinical microbiology, Christian Medical College (CMC), Vellore, have identified a rare strain of hypervirulent bacteria that can cause blindness, meningitis and other severe infections. The study by doctors was published in the Journal of the Association of Physicians of India revealed that the bacteria, Klebsiella pneumoniae, led to high mortality rate affecting 27 out of 86 patients treated at the hospital. Carbapenem is a class of highly effective antibiotic agents used to treat high-risk bacterial infections. Infections caused by carbapenem resistant K. pneumoniae, isolated from various sources, are increasing and associated with high mortality rates. However, there is limited data on the prevalence of these strains among carbapenem-resistant K. pneumoniae from invasive infections in India and its association with mortality. The study investigated the prevalence of highly infectious strains amongst carbapenem resistant K. pneumoniae isolated from blood culture. The study also determined the association of mortality rate with hypermucoviscous strains are determined.

Climate change leads to spread of diseases

December 17, 2018/Deccan Chronicle

Climate change and vectorial capacity are directly linked to each other. The changing climate has shown that the transmission of dengue fever which was 10 per cent in 1950's has risen considerably across the vulnerable regions. To add to this, the increased incidence of flooding yields unhygienic conditions leading to the spread of infectious diseases, explains Dr Suneetha Narreddy, consultant, infectious diseases at Apollo Hospitals.

What is the link between climate change and diseases and how big is the effect? Is it being seen more now because of the erratic changes in the weather conditions?



Bacteria have been the dominant forms of life on earth. They are responsible for the atmosphere we live in. For example, they help in getting nitrogen to the plants from the atmosphere. Bacteria that cause disease like anthrax and bubonic plague are not normally present in the arctic region. In August 2016, there was an outbreak of anthrax in Yamal Peninsula of the Siberian Tundra. Now anthrax is normally not present in this region, so scientists asked the question as to how it got there. The explanation is that, a reindeer infected with anthrax died 75 years ago, the carcass remain frozen in the permafrost until there was a heat wave when it melted and the carcass was exposed. The reindeers in the area became infected and then transmitted the anthrax to human beings. Is this an isolated event or will there be more such cases where forgotten diseases will begin to appear? The permafrost melting may open up a Pandora's box of newer diseases. It is possible there may be other microbes like the virus that caused the Spanish flu, bubonic plague and the small pox virus.

Risk of serious kidney injury high during chemotherapy for cancer patients

December 18, 2018/Deccan Chronicle

Nearly one in 10 cancer patients treated with chemotherapy or newer targeted drugs may be hospitalized for serious kidney injury, a Canadian study suggests. The study involved roughly 163,000 patients who started chemotherapy or targeted therapies for a new cancer diagnosis in Ontario from 2007 to 2014. Overall, 10,880 were hospitalized with serious kidney damage or for dialysis. This translated into a cumulative acute kidney injury rate of 9.3 percent, the study found.

People with advanced tumors were 41 percent more likely to have acute kidney injuries than patients with early-stage cancer. Compared to the group as a whole, individuals who already had chronic kidney disease were 80 percent more likely to be hospitalized for a kidney injury, and people with diabetes had a 43 percent greater chance. "Patients should be aware that kidney injury can result during cancer treatment - both due to cancer itself and the drugs used to treat it," said lead study author Dr. Abhijat Kitchlu of the University of Toronto.

Junk food increases risk of depression

December 19, 2018/The Tribune

A diet of fast food, cakes and processed meat may significantly increase risk of depression, a study has found. Researchers from Manchester Metropolitan University in the UK found that eating foods which are known to promote inflammation—such as those high in cholesterol, saturated fats and carbohydrates—puts people at 40 per cent higher risk of depression.

The team analysed data from 11 existing studies that focused on the link between depression and pro-inflammatory diets—encompassing more than 100,000 participants, between 16 to 72 years old, of varied gender and ethnicity, spanning the USA, Australia, Europe and the Middle East. All the studies recorded the presence of depression or depressive symptoms in the participants—through self-observation, medical diagnoses and antidepressant use—alongside a detailed questionnaire about the contents of their diet. Each participant was assigned a score of how inflammatory his or her diet is, according to the dietary inflammatory

index. Some of the studies were cross-sectional, using data that was immediately available, and other studies tracked participants for up to 13 years. Across all studies, participants who had a more pro-inflammatory diet were, on average, 1.4 times more likely to have depression or depressive symptoms. The results, published in the journal *Clinical Nutrition*, were consistent regardless of age or gender—and were the same over both short and long follow-up periods.



Protein that helps dengue, Japanese Encephalitis viruses multiply identified

December 19, 2018/Down to Earth

When dengue virus infects human bodies, white blood cells get activated to fight it. But instead of destroying the virus, white blood cells are targeted and infected by the virus. The virus fools the immune system to get around its defenses and infect more cells. As white blood cells travel through the lymphatic system, the virus spreads throughout the body. Now a collaborative study led by a team of Indian scientists has identified a key protein which helps dengue as well as Japanese Encephalitis viruses replication inside human body by inhibiting anti-viral cytokines. This finding could pave way for development of targeted therapeutic agents against dengue and JE viruses. Normally when platelets circulate through blood vessels with an intact endothelium layer, they remain in their original inactivated state. During dengue infection, platelets get activated, and they release an elevated amount of cell-signalling protein called Platelet Factor 4 (PF4).

In the study which used blood samples from dengue patients, scientists found that Platelet Factor 4 inhibits anti-viral machineries of immune cells by inhibiting secretion of anti-viral cytokines (small proteins) such as interferon. In order to inhibit function of Platelet Factor 4 scientists targeted its receptor called CXCR3. Using a small molecule antagonist to CXCR3, researchers could inhibit the virus replication *in vitro* as well as *in vivo*.

Scientists develop non-invasive technique to assess burn wound healing

December 19, 2018/Down to Earth

Assessing a burn wound to know the status of healing is currently an invasive process such as biopsy, which is both painful and scarring. Now scientists have developed a non-invasive technique that involves mere flash of a laser light to assess healing. The method exploits a particular property of some tissue proteins—ability to re-emit light upon absorption. Such proteins, known as tissue fluorophores, have chemical compounds that can re-emit light. Collagen is one such protein that is vital in wound healing. So when a laser light is flashed on tissues under examination, the amount of re-emitted light from the healing tissue directly corresponds to collagen concentration, which in turn, indicates the status of recovery process. Researchers at the Manipal Academy of Higher Education used commercially available 325 nm laser light to inspect healing by exploring tissue fluorophores, and a detector to collect re-emitted light. The re-emitted spectra were recorded using a fibre optic probe kept very close—about 3 mm—to the wound site. The spectra was then analysed in a spectrograph connected to a computer.

The collagen levels measured by this technique, known as auto fluorescence, were validated by biochemical tests of patient tissues. The comparison showed that auto fluorescence was consistent and suitable for assessment of burn wound healing. This study also shown tissue collagen can be used as an optical biomarker for assessing burn wound healing, researchers explained. Tissue samples were

collected from burn patients admitted to the Department of Plastic Surgery and Burns, Kasturba Medical College. In earlier studies, the technique was used in lab-induced wounds in animals.



Higher intake of green leafy veggies essential to prevent liver disease, says study

December 20, 2018/The Asian Age

Consuming a higher amount of green leafy vegetables can help reduce the risk of developing liver disease, a new study has suggested. Liver steatosis or fatty liver is a common disease that affects approximately 25 per cent of the global population. The most important causes are overweight or high alcohol consumption and there is currently no medical treatment for the disease. In a study published in the journal PNAS, researchers from Karolinska Institute showed how a larger intake of inorganic nitrate, which occurs naturally in many types of vegetable, reduces accumulation of fat in the liver. They also showed how a greater intake of inorganic nitrate can prevent the accumulation of fat in the liver. "When we supplemented with dietary nitrate to mice fed with a high-fat and sugar Western diet, we noticed a significantly lower proportion of fat in the liver," said Mattias Carlstrom, a researcher. Their results were confirmed by using two different cell culture studies in human liver cells. Apart from a lower risk of steatosis, the researchers also observed a reduction of blood pressure and improved insulin/glucose homeostasis in mice with type 2 diabetes.

Exercise, healthy diet may improve brain power in elderly

December 21, 2018/The Tribune

Just 35 minutes of walking or cycling three times a week along with a healthy diet may improve brain power among the elderly, a study claims. The study, published in the journal Neurology, found that regular exercise and a healthy diet improve the heart and cardiovascular health and with this improvement in "neurocognitive functioning" can also be seen. "You're improving brain health at the same time as improving heart health," said James Blumenthal, a clinical psychologist at Duke University in the US. "I don't think there is another study that looked at the separate and combined effects of exercise and diet in slowing cognitive decline in patients who are vulnerable to develop dementia in later life," said Blumenthal. The team included 160 adults who were suffering from high blood pressure or other heart disease risk factors. These adults never exercised and had some degree of cognitive impairment such as difficulty concentrating or remembering or making decisions. The average age of these individuals was 65 years and two thirds of them were females.

With regards,

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